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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,354	03/10/2005	Takashi Nishihara	10873.1621USWO	4933
52835 7590 10/02/2007 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902			EXAMINER MULVANEY, ELIZABETH EVANS	
			ART UNIT 1774	PAPER NUMBER
			MAIL DATE 10/02/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,354	Applicant(s) NISHIHARA ET AL.	
	Examiner Elizabeth E. Mulvaney	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,12-17,20-22 and 25-35 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10,12-17,20-22 and 25-35 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/27/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 25 recites the limitation "the transmittance adjusting layer" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 12, 13, 15, 32, 33 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2002/0160306.

The reference discloses a recording medium comprising a Ge-Sb-Te recording layer and a crystallization accelerating layer formed of Bi and/or Te with the addition of La, Ce, Pr and/or O in the claimed thickness range. See [0100] and [0103] and Tables. The medium also includes dielectric layers. The layers are formed by sputtering. See Examples.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0160306.

It is recognized that the reference does not specify the compositional ratios for the crystallization accelerating layer as claimed. However, the reference discloses that the crystallization accelerating layer is formed of mixtures of various materials. See [0102]. Therefore, as suggest by the patent, it would be obvious to vary the amounts of the different components of the mixture. One would be motivated by the reasoned expectation of obtaining the ability to control crystallization speed as described.

Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0160306 in view of US 5,221,588.

It is recognized that the '306 reference does not disclose the specific recording layer composition as claimed. However, the '588 reference shows that these compositions are known in phase change recording media. One would reasonably substitute one phase change material for another with the expectation of predictable results.

Claims 14, 17, 20-22 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0160306 in view of US 6,670,014.

It is recognized that he '306 reference does not disclose multiple recording layers, dielectric layers, or a transmittance adjusting layer. However, US 6,670,014 shows that these features are known in phase change recording media. See Figure 1 and explanation thereof. One would expect that multiple recording layers would result in increased recording capacity and that the addition of

multiple dielectric layers and a transmittance ϵ adjusting layer would result in the described increased protection of the recording layers.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0160306 in view of US 6,432,502.

It is recognized that the '306 reference does not describe an absorption correction layer. However, the '502 reference shows that it is known to include such a layer in a phase change recording medium. See col. 6, 4th paragraph. One would expect that the inclusion of the layer in any phase change recording medium would result in the increased signal amplitude as described.

Claims 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0160306 in view of US 6,670,014 further in view of US 6,723,411.

As described above, the combination of the '306 and '014 references would result in a phase change recording medium having the claimed multiple recording layers formed of the claimed materials with multiple dielectric layers formed on either side thereof. The reference do not disclose the specific dielectric layer materials as claimed. However, the '411 reference shows that it is known to use HfO₂, SiO₂, Cr₂O₃ and fluorides in dielectric layers. See col. 12-13 and 15-16. The mixtures of materials as described would result in various compositional ratios of materials.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano, can be reached at (571) 272-1398. The fax number for the organization where the application is assigned is (571) 273-8307. Information regarding the status of an application may be obtained from the Patent Application Information retrieval (PAIR) System. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more

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information about the PAIR System, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR System, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).



Elizabeth Evans Mulvaney
Primary Examiner
Group 1700
571-272-1527